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1: Vet Immunol Immunopathol. 1987 Dec;17(1-4):303-12. Related Articles, Links

Progress on gene transfer in farm animals.

Pursel VG, Rexroad CE Jr, Bolt DJ, Miller KF, Wall RJ, Hammer RE, Pinkert CA, Palmiter RD, Brinster RL.

Laboratory of Reproductive Physiology, University of Pennsylvania.

Transgenic pigs and sheep have been produced by the microinjection of single-cell zygotes and two-cell ova with linear molecules of mouse metallothionein I (MT) promoter/regulator fused to either the human growth hormone (hGH) or bovine growth hormone (bGH) structural genes. The foreign genes integrated into the chromosomes of 3 of 111 lambs or fetuses and 31 of 341 pigs or fetuses examined. Immunoreactive hGH or bGH was present in the plasma of two transgenic lambs and 19 transgenic pigs. The hGH concentration in plasma varied greatly among pigs and was unrelated to the number of gene copies that had integrated. Rate of growth was not enhanced in any of the transgenic pigs in comparison to their littermate controls. However, bGH and hGH exerted definite biological effects in transgenic pigs as evidenced by significantly depressed backfat measurements, elevated levels of insulin-like growth factor (IGF-I), stimulation of mammary development (by hGH) and reduction in porcine growth hormone (pGH) to nondetectable levels in plasma. Five of six founder transgenic pigs transmitted the MT-hGH gene construct to one or more progeny. Three progeny of a boar that expressed hGH also expressed the foreign gene.

PMID: 3481144 [PubMed - indexed for MEDLINE]

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